I. INTRODUCTION

The City of Burbank Building Division sponsors the Student Design Competition each year in collaboration with Burbank Water and Power and the Burbank Recycle Center to provide an opportunity for high school students in the City to creatively explore the areas of building design, site planning, transportation, community services and redevelopment. The City departments involved in sponsoring this competition comprise professionals who have many years of experience and understanding in these areas. The contest is an ideal opportunity for students to interact with City Staff in order to gain knowledge of and exposure to building design, construction, and basic City operations.

The competition mainly addresses the fields of architecture and planning, but it is not limited to students interested in only those subjects. Students with interests in art, photography, environmental issues, graphic design, urban planning, local government, and computer design are also encouraged to participate. A wide range of media may be used to solve the design problem in creative ways.

The project focuses on design of a single family dwelling in a different topographical setting each year. Working with a house design encourages creative thinking and analysis of a familiar use and building type. It requires analyzing climate, materials, site circulation, relationships between functions, massing of building forms, materials, and aesthetics. Participants may enter as individuals or as a team.

II. CRITICAL DATES:

October 1, 2010	Program packets available
December 3, 2010	Deadline to submit registration forms
December 2010 – January 2011	City staff available for project reviews and site visits to schools (to be arranged)
February 11, 2011	PROJECT SUBMITTAL DEADLINE
March 2011	Recognition Party: Announcement of awards at the Community Services Building (Date to be determined).
March 2011	Presentation of scholarships at meeting of the City Council at City Hall (Date to be determined pending Council's calendar, but it will be on a Tuesday evening).

III. THE PROGRAM

PROJECT DESCRIPTION: July 2011 marks the City of Burbank's 100-year anniversary. As part of the celebration, the theme of this year's contest is to design a sustainable home for the next 100 years in the City As an architect, you have been commissioned to design an energy efficient Single Family Dwelling which will serve as a residence for a client who wants a sustainable home in Burbank that will be both modern in appearance and in operation.

What will the home of the future look like? Will it still have a similar floor plan? What construction materials will it be used? These are the questions that you will have to answer. The house can be on any site in the City, either in the hillside or in the flat sections. As a frame of reference, a typical residential lot in Burbank is approximately 7,000 square feet, measuring 50 feet wide by 140 feet long, but your project can be on a larger or smaller property.

There are no restrictions on the number, use, or size of the rooms in the house. Even though cities have regulations and restrictions that determine how close a building can be to the property line, how much area is allowed to be built on a site, and the maximum building height and building area in relation to the size of the lot, these restrictions will not apply to this project. This competition will be an exercise in creative expression of building design and site use. There is also no specific monetary budget for the house design and construction.

The only design requirement is that the house address energy efficiency by using the site's solar orientation, maintaining the maximum use of the sun's heat and protection from the cold north winds, and integrating recycled materials, rainwater collection methods, and composting into the project.

Applicants may receive assistance from those outside of the school faculty such as an architect, engineer or any person in a field related to design, but their name must be included on the application form as an Advisor.

PRESENTATION MATERIALS: The final presentation and project submittal should clearly communicate visually how the house will be used and function based on the location of the rooms, the circulation throughout, and the relationship between indoor and outdoor spaces. This can be achieved by any or all of the following methods:

- Sketches, renderings, or perspective drawings
- Depiction of the house using paint, charcoals, pastels or as a collage of materials used in either an abstract or realistic way.
- Hand drafted or computer generated floor plans and exterior elevations. These should be drawn to a scale with basic overall dimensions.
- Photos or magazine cutouts of building elements and materials that would apply to the design
- A physical model or sculpture that would show the shape and massing of the house and could also show room layout and relationships between walls and openings. This can be made of any material selected by the designer, such as foam core or cardboard.

SUBMITTAL REQUIREMENTS: THESE ARE THE ITEMS THAT ARE REQUIRED FOR SUBMITTAL. THEY SHOULD BE MOUNTED A STURDY CARDBOARD OR FOAM CORE BOARD:

1. Site Plan: Indicate how the house is oriented on the site with a North Arrow.
2. Floor Plan(s) of each level showing interior rooms and drawn to scale.
3. Elevations of the building's exterior as seen from all four sides.
4. A sketch, rendering, or 3-D computer drawing that gives an overall perspective view of the house.
5. Magazine clippings or samples of materials and sustainable features.
6. A one- or two-paragraph written statement that specifies the program and explains how you have provided for your client's interests and how the house addresses sustainability. This must be attached to one of the boards.
7. A foam core or cardboard physical model of the house situated on its site.

IV. AWARDS:

A panel of judges from the Burbank community including architects, council members and representatives of major companies will select the winners based on their interpretation of the project's:

- Design /Creativity: How unique is the solution?
- Presentation quality/ Workmanship: How clear are the presentation boards?
- Program: Does the project integrate the client's needs with environmentally beneficial features such as the use of recycled materials, rainwater capturing, composting. Is the house an energy efficient building that addresses the solar orientation, cooling/ heating needs and wind/sun protection of the site?

BWP-Recycle Center Environmental Scholarship (cash):

First Place	$3,000.00 per team
Second Place	$2,000.00 per team
Third Place	$1,000.00 per team

All participants will receive Gift Cards and Certificates of Participation. The first, second and third place scholarship winners will be recognized at a meeting of the City Council on a Tuesday evening in March 2011 (date to be confirmed).

This information is available for download from our website:
www.ci.burbank.ca.us/index.aspx?page=573

Find us on Facebook at "Burbank Student Design Competition"

V. SUSTAINABLE ARCHITECTURE

Architect William McDonough conceived of his green house of the future as a tree. The surface of the house acts as a "leaf," collecting sunlight that transforms into energy which can heat water and provide electricity. The "trunk" is made of carbon tubes instead of wood or metal. An underground heat-pump exchange system forms the "roots" of the house. When the useful life of the house is over, the remains would be biodegradable.

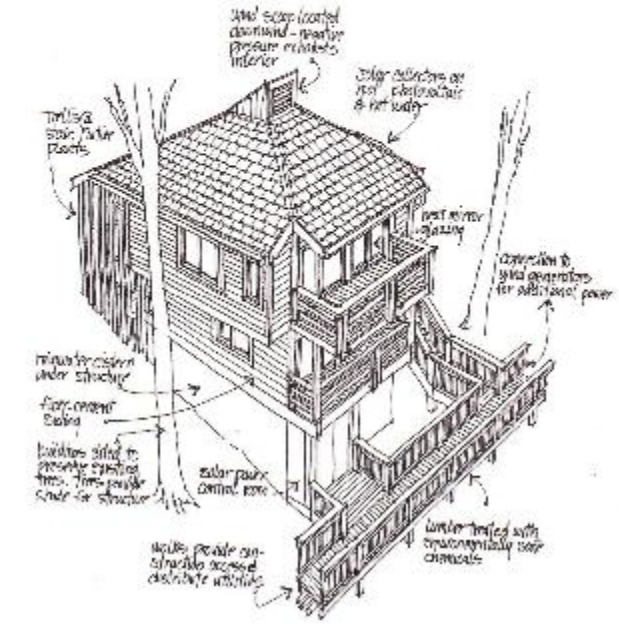
In the design of their green house, Cook + Fox looked to biomimicry, the technology that examines natural processes and adapts them in the built environment. The exterior of their LiveWorkHome is sheathed with a biomorphic skin that turns dark or light in response to sunlight. The material of the façade can also capture rain and condensation to meet water needs.

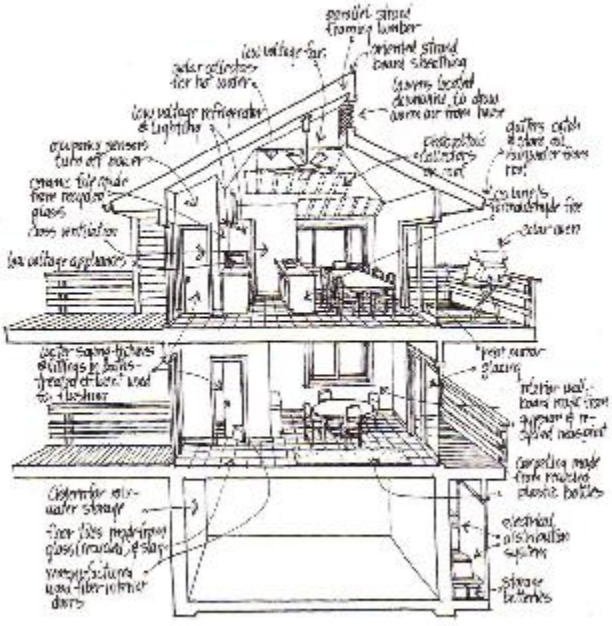
Rios Clementi Hale Studios created a playful Incredible Edible House that has a vegetable garden for exterior walls.

Mouzon Design's Smart Dwelling combines older methods with modern technology. A breeze chimney built in the middle of the house is an ancient form of air conditioning where the difference between outside and indoor air pressure forces cool air to enter the house through windows and hot air to exit through the chimney stack. High-tech solar panels built into the exterior walls and the roof provide electricity and hot water. The designer believes that one of the most important ways to make a house sustainable house is to make it compact.

VI. ENVIRONMENTAL RESOURCES:

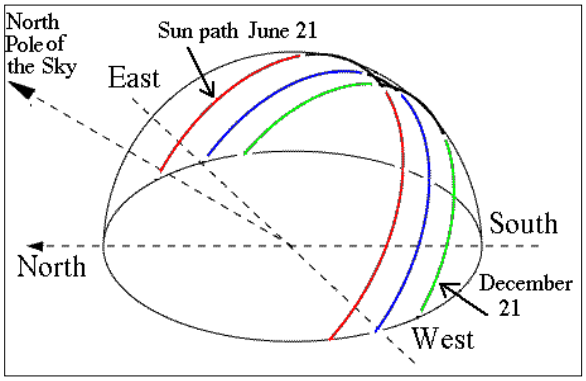
ENVIRONMENTAL DESIGN ELEMENTS:





Wind Power. The wind farm in the San Gorgonio Mountain pass provides enough electricity for Palm Springs and the entire Coachella Valley. Each of the 4,000 windmills produces 300 kilowatts of power by transforming the kinetic energy of the wind into mechanical or electrical energy. The windmills require an average wind speed of at least 13 mph to operate. The largest stands 150 feet tall, weighs 45,000 pounds, and costs approximately $300,000.

Sun Path. The sun rises in the east and sets in the west. The building's south side receives the most sun, with the north wall not receiving direct sunlight. In the summer, the sun's path is longest, and so are the days. In the winter, the sun's path is shortest, and so are the days.



Rainwater & Greywater Systems. Rainwater that lands on a home's roof is collected in roof gutters and downspouts that divert the water to filtration device before it arrives in a cistern, which is located either above or below ground. The stored water can be pressurized and piped to an irrigation system for landscaping. In an approved greywater system, water used by clothes washers and bathroom sinks and showers is diverted through a filtering system and reclaimed for landscape irrigation.

Composting. Composting is the process of speeding up the decaying of organic matter for use as garden soil by placing it in a special composting bin.

Recycled Materials. The best way to reduce the energy used for production of construction materials and the negative impact waste disposal has on the environment is to re-use more and recycle everything possible. Recycled-content materials such as roofing, gypsum board, siding, and even paint are readily available

VII. SUSTAINABILITY LINKS

Composting: http://www.howtocompost.org/
http://www.nrcs.usda.gov/FEATURE/backyard/compost.html

Green Building:
U.S. Green Building Council www.usgbc.org
California Integrated Waste Management Board http://www.ciwmb.ca.gov/greenbuilding
Environmental Protection Agency http://www.epa.gov/greenbuilding/index.htm
Green Building Advisor http://www.greenbuildingadvisor.com/

Energy Efficiency & Renewable Energy
U.S. Department of Energy www.eere.energy.gov

Greywater Systems
http://www.greywater.com/

Maps U.S. Geologic Survey – Site Information
http://nmviewogc.cr.usgs.gov/viewer.htm

Rainwater Harvesting & Greywater
http://www.h2ouse.org/tour/rain-harvesting.cfm

Recycled Materials:
California Integrated Waste Management Board
http://www.ciwmb.ca.gov/greenbuilding/Materials/

Solar Water Heating
http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=12890

Sun Path Diagrams
http://solardat.uoregon.edu/SunChartProgram.html
http://squ1.org/wiki/Sun_Path_Diagram

Sustainable Building
http://www.wbdg.org/design/sustainable.php

Water Conservation:
Burbank Water & Power http://www.burbankwaterandpower.com/
Metropolitan Water District http://www.bewaterwise.com/
http://www.mwdh2o.com/mwdh2o/pages/education/h2o/9-12.html

Wind Energy:
Energy Information Association
http://tonto.eia.doe.gov/kids/energy.cfm?page=wind_home-basics
Wind Energy Association http://www.awea.org/faq/

VIII. PAST WINNERS: Entries from last year's Desert House competition:

First Place: Desert Oasis by Sean Park

Second Place: Desert Home
by Austin Flores

Third Place: Dream, Think, Live Green by Natalie Sanchez

Third Place: Desert Oasis by Brian Lee, Emily Yun and Narek Mkrtoumian,

Honorable Mention: Katherine Piralyan